

A new species of Ancillariinae (Gastropoda: Olividae) from the southwestern Atlantic Ocean

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ABSTRACT

A new species of the ancillid genus *Amalda* is described from the southwestern Atlantic off Brazil, Uruguay, and Argentina. *Amalda jossecarlosi* new species was identified as *Ancilla dimidiata* and *A. tankervillei* by previous authors. Detailed study of the type material and other specimens of the two latter taxa allowed for the recognition of the new species. Adults and juveniles of *Amalda jossecarlosi* new species from several localities along the Southwestern Atlantic coast are illustrated, described and compared to other living congeners.

INTRODUCTION

The genera *Amalda*, *Ancilla*, and several other Ancillariinae from the southeastern Atlantic were thoroughly studied by Kilburn (1977, 1980, 1981, 1993). Kilburn and Boneliet (1988) also studied the genus *Amalda* from New Caledonia describing four new species and one subspecies. Besides *Amalda jossecarlosi* new species, there are four species of Ancillariinae in the southwestern Atlantic: *Ancilla faustoii* Matthews, Matthews and Dijk, 1980, *A. (Hesperancilla) matthewsi* Burch and Burch, 1967 and *Eburna lieuardii* (Bernardi, 1859). *Amalda tankervillei* (Swainson, 1825) occurs only off northern South America (*i.e.* Isla Margarita, Venezuela). Rios (1991) expressed doubts about the presence of this species off Brazil. There is not, however, a systematic treatment of the subfamily for the species occurring in the southwestern Atlantic.

Dall (1890) mentioned young and dead specimens of *Amalda tankervillei* off Río de La Plata (Argentina) and the Brazilian coast collected by the ALBATROSS expedition at stations 2764 and 2762, respectively. Perhaps influenced by the latter record, Fernández (1965) also cited *Ancilla tankervillei*, a Venezuelan species and type of the genus *Amalda* H. and A. Adams, 1854, from off Argentina. Scarabino (1977) considered this record as *Ancilla dimidiata* and extended the known range of this species to San Matías Gulf, Río Negro Province, Argentina (~41°S). Previously, Strebel (1908), based on ma-

terial of the Swedish Südpolar Expedition, illustrated what he identified as *A. dimidiata* from the southern coast of the Brazilian state of Rio Grande do Sul. Marcus and Marcus (1968) studied the anatomy of specimens supposedly of *Ancilla dimidiata* but based the name on specimens identified by Klappenbach from the littoral of Rio de Janeiro State, Brazil (Ubatuba and Angra dos Reis). The specimens studied by Marcus and Marcus are herein assumed to belong to the new species.

In his original description of *Ancillaria dimidiata*, G. B. Sowerby II (1859), gave Red Sea as the type locality. Later, E. A. Smith (1915: 96) challenged that locality and mentioned that G. B. Sowerby III's record (1892) of *A. dimidiata* from South Africa was probably incorrect. This latter opinion was confirmed by Kilburn (1981: 108) who synonymized *A. dimidiata* (G. B. Sowerby III, 1892; non G. B. Sowerby II, 1859) with *Ancilla marmorata* (Reeve, 1864). The present report includes, in addition to the description of the new species of *Amalda*, a study of the syntypes of *Ancillaria dimidiata* G. B. Sowerby II, 1859, the holotype of *Ancillaria tankervillei* Swainson, 1825, and several other relevant lots of these species.

MATERIALS AND METHODS

The specimens examined in this study are deposited in the collections of the Museo Argentino de Ciencias Naturales "Bernardino Rivadavia", Buenos Aires (MACN), Museo de La Plata, La Plata, Argentina (MLP), and the Museo Nacional de Historia Natural Montevideo, Uruguay (MNHNM). Two syntypes of *Ancillaria dimidiata* and the holotype of *Ancillaria tankervillei* are housed in The Natural History Museum, London (BMNH), BMNH 197832 and BMNH 197824 respectively. Reference material from Brazil housed at the Museu de Zoologia de la Universidad de São Paulo, Brazil (MZSP) and at the J. C. Tarasconi collection (Porto Alegre, Brazil) were also studied.

Dissections were performed on ethanol-preserved specimens. The radulae were prepared according to the

method described by Solem (1972). Most photographs were taken using a digital camera. All images were digitally processed.

Most of the terminology used in the description of the species followed Kilburn (1977, 1981), Marcus and Marcus (1965), and Voskuil (1991). However, the **posterior groove** (apical line of Marcus and Marcus, 1961) is here defined as the narrow and weak groove of the last whorl, which starts in the parietal callus, runs parallel to the ancillid groove, and ends in the labrum. The area between the posterior groove and the ancillid groove is here referred to as the **last whorl middle band**. A data matrix based on 26 shells was prepared including their maximum length and width and the length of the region between the posterior groove and the ancillid groove when both grooves reach the edge of the labrum (see Table 1). Figures 22–25 show the different shell terminologies.

SYSTEMATICS

Class Gastropoda Cuvier, 1791
Order Neogastropoda Wenz, 1938
Family Olividae Latreille, 1825
Subfamily Ancillariinae Swainson, 1840

Remarks: I follow Kantor and Bouchet (1999), who showed that Ancillariinae Swainson, 1840, has priority over Ancillinae H. and A. Adams, 1853.

Genus *Amalda* H. and A. Adams, 1853

Type Species: *Ancillaria tankervillei* Swainson, 1825, by subsequent designation of Vokes, 1939.

Amalda josecarlosi new species
Figures 1–14

Ancillaria tankervillei Dall, 1890: 310.

Ancillaria dimidiata Strebel, 1908: 25, pl. 1, figs. 2a–c

Ancilla dimidiata Smith, 1915, *non* Sowerby, 1859, *non* Sowerby, 1892; Marcus and Marcus, 1965, figs. 1–9 (anatomy); Rios, 1970: 102, pl. 32; 1975: 111, pl. 33, fig. 472; 1985: 111, pl. 35, fig. 491; 1994: 143, pl. 16, fig. 613; Figueiras and Sicardi, 1973: 264, pl. 15, fig. 193; Scarabino, 1977: 191, pl. 3, fig. 5; Calvo, 1987: 161, fig. 148.

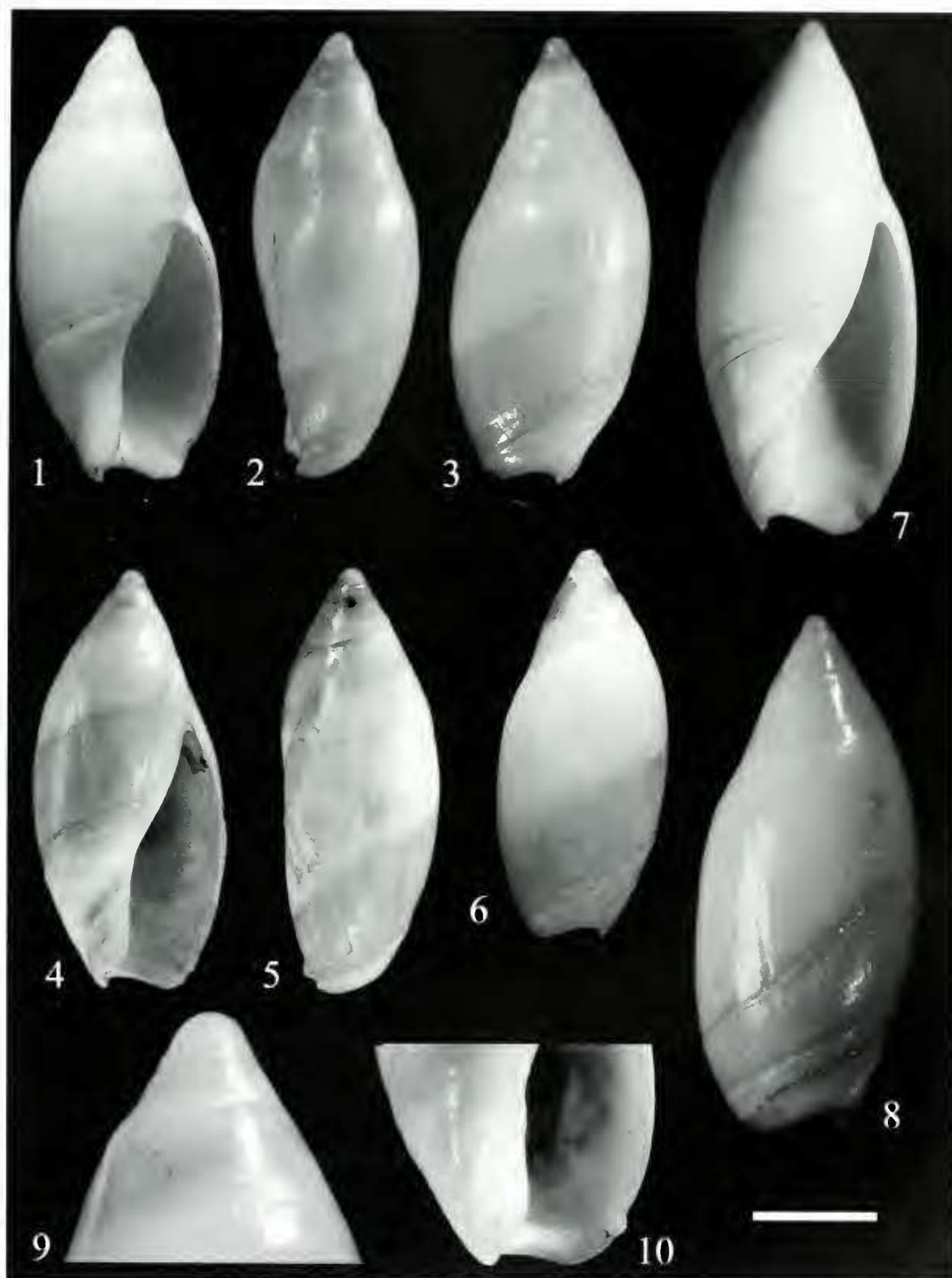
Ancilla tankervillei Fernández, 1965, figs. 1–4; Castellanos, 1970: 121, Pl. 9, fig. 7, *non* Swainson, 1825

Diagnosis: Shell small, elliptic-ovate. Spire low, covered by primary callus, secondary callus tongue-shaped, aperture thin, with labral denticle subterminal, conspicuous. Columellar pillar straight, 3–4 oblique pleats, posterior groove starting at the parietal callus, slightly adapical to the posterior angle, ending gradually below the middle part of labrum. Adult specimens show sudden change in direction of posterior groove toward anterior edge of labrum. Shell bright-white, adult specimens with faint, darker subsutural line visible under spire glaze and comprising a region delimited by the posterior groove and the ancillid groove; last whorl middle band darker.

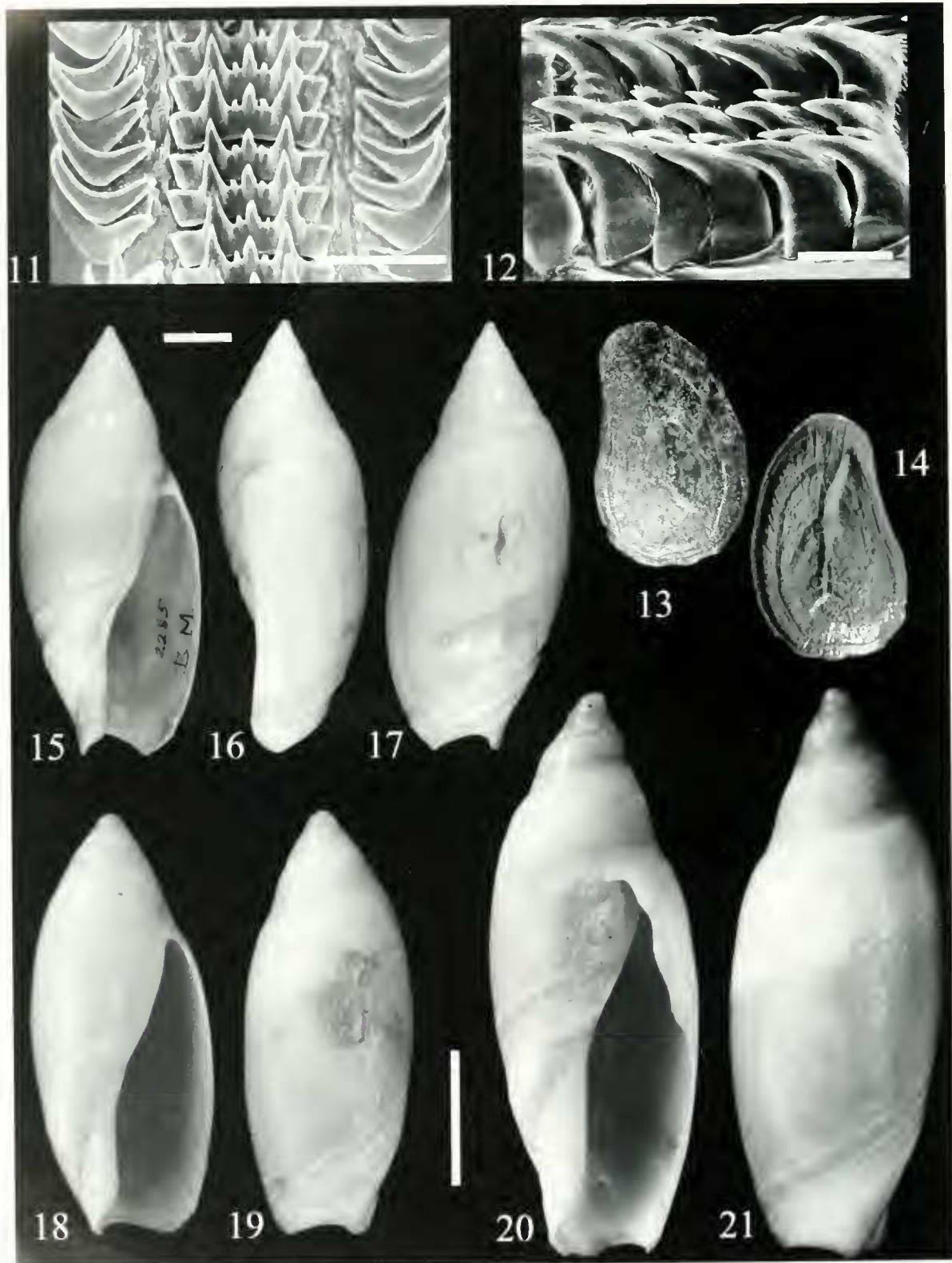
Table 1. Shell measurements (mm) of *Amalda josecarlosi* new species and *A. dimidiata* syntypes.

	Shell length	Shell width	Posterior groove–last whorl middle band
<i>Amalda josecarlosi</i> new species			
MACN 6519			
Holotype	17.6	5	3.7
MACN 23489			
Paratype	15.5	5.6	3.9
	17	7.6	4.5
MACN 9361-57			
Paratype	10.5	4.6	3
MACN 10295	20.5	9.2	4.2
MACN 15356			
Paratype a	15.4	7	2.5
Paratype b	15.6	6.5	3.7
Paratype c	9.5	4.9	3.5
MACN 8557-16			
Paratype a	16	7.6	3
Paratype b	13.2	6.4	3.1
MACN 10707			
Paratype	13.3	5.5	3.2
MHP 1454			
Paratype	17.4	5.2	1.8
Tarasconi collection (Santa Catarina)			
Specimen a	12.2	5.6	3.2
Specimen b	12	5.6	2.3
Specimen c	11.7	5.2	2.4
Specimen d	9.6	4.4	2.7
Tarasconi collection (São Paulo)			
Specimen a	12.5	5.5	3.6
Specimen b	10.3	4.9	3.3
Specimen c	10	4.6	2.4
Specimen d	7.4	3.4	1.2
MHP s/n	21	9.3	2.4
MZSP 32583	11.7	5	3.3
Specimen a	9.1	3.6	2.5
Specimen b	9	4	2.5
<i>A. dimidiata</i>			
Syntype 1	20.6	7.5	5.5
Syntype 2	15.5	6.5	7.5

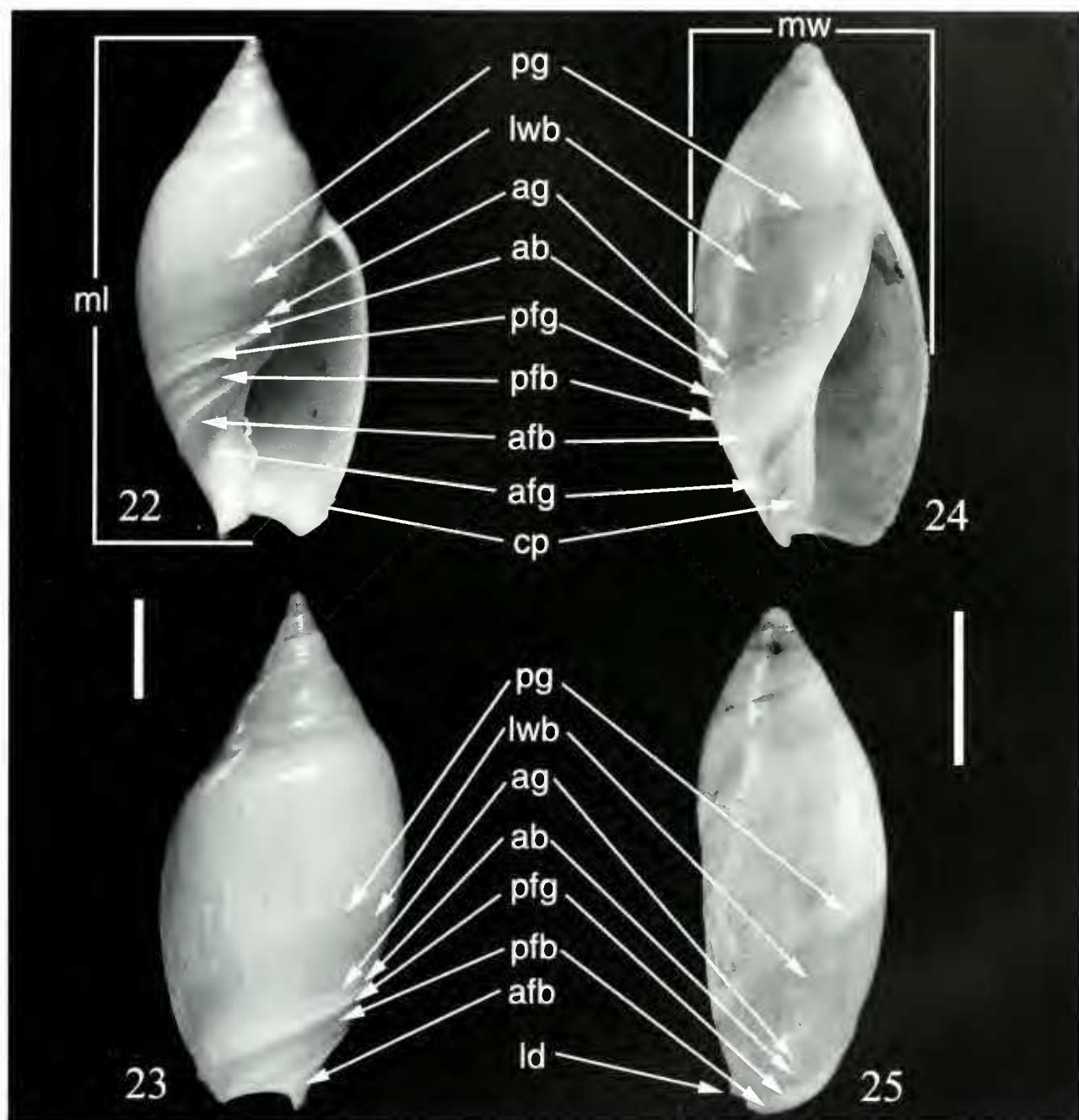
Description: Shell small, up to 22 mm in length, elliptic-ovate, somewhat fusiform, with five smooth, flat whorls. Protoconch with 2.5 whorls, completely smooth, translucent. Suture impressed, visible only in the first whorls of young specimens, covered in adult specimens by primary callus, except on protoconch. Secondary tongue-shaped callus extends from the middle of the penultimate whorl, over the posterior angle of the aperture and the posterior part of the labrum, to the beginning of the columellar pillar. Last whorl slightly shouldered. Aperture triangular, posterior end strongly angled, la-



Figures 1-10. *Amalda josecarlosi* new species 1-3. Holotype. MACN 6519, Golfo San Matias, Rio Negro, Argentina. 4-5. Paratype, MACN S557-16, ARA Patria, Station S0, off Mar del Plata, Buenos Aires. 6. Paratype. MACN I5356-1, 34°40' S-53°59'30" W. 7-8. MLP unnumbered. Mar del Plata, Buenos Aires. 9. Detail of the protoconch of the specimen of fig. 4-5. 10. Detail of the basal part, showing the labral denticle. Scale bar = 5 mm for Figures 1-8.



Figures 11–21. 11–12. *Amalda josecarlosi* new species. 11. Dorsal view of the radula. Scale bar = 50 μ m. 12. Lateral view of the same radula. Scale bar = 20 μ m. 13–14. External and internal views of the operculum. Scale bar = 2.5 mm. 15–17. *Amalda tankervillei* Swanson, 1925: three views of the holotype, BMNH 197821. Scale bar = 10 mm. 18–21. *Ancillaria dimidiata* Sowerby, 1859: two views of the two syntypes BMNH 197832. Scale bar = 5 mm.



Figures 22–25. 22–23. *Amalda tankervillei* (Swainson, 1925) from Isla Margarita, Venezuela. Scale bar = 10 mm. 24–25. *Amalda jossecarlosi* new species, MACN S557-16, off Mar del Plata, Buenos Aires. Scale bar = 5 mm. Abbreviations: ab: ancillid band; afb: anterior fasciolar band; afg: anterior fasciolar groove; ag: ancillid groove; cp: columella pillar; ld: labral denticle; lwb: last whorl middle band; ml: maximum length; mw: maximum width; pfb: posterior fasciolar band; pfg: posterior fasciolar groove; pg: posterior groove.

brum very thin, sharp, curved; basal denticle subterminal, conspicuous; labral base projects beyond base of columella base. Siphonal notch deep. Columellar pillar straight, with 3–4 oblique pleats, the posterior larger reaching the parietal callus, anterior fasciolar groove fairly deep, anterior and posterior fasciolar band ("opaque area" of Marcus and Marcus, 1981) of similar width and

divided by a weak median ridge; posterior fasciolar groove very weak. Posterior groove starting slightly above the posterior angle of the aperture and ending gradually always abapically to the middle part of labrum. Adult specimens show sudden change of direction of posterior groove toward the anterior edge of the labrum (Figure 5). Ancillid groove shallow, ancillid band narrow.

Growth lines covering entire shell, very conspicuous on last whorl, forming a brown color pattern. "Microslua-green" sculpture ("microscopic pustules" *sensu* Kilburn, 1981) regularly packed in both calluses and less dense on columellar pillar and adaperatural part of labrum. Color bright white; some specimens (usually adults) with a subsutural dark but faint line under spire glaze. Region delimited by the posterior groove and the ancillid groove ("basal groove" of Marcus and Marcus, 1968, herein referred to as "last whorl middle band") brownish or dark tinted. Operculum delicate, pale-yellow, ovate-elliptical, somewhat oblong, nucleus subterminal, attachment area on left side (Figures 13–14).

Radula is racliglossate; rachidian teeth with three cusps, the central one shorter than the laterals. One denticle between the central cusp and the laterals (sometimes an extra obsolete, asymmetric denticle is visible, see Figure 12), always rising from the base of the rachidian tooth. Marginal teeth curved with a thick attachment area.

It is interesting to remark that the short central cusp of the rachidian in radula is a recurring character in the genus *Amalda* (as far as it can be seen on *A. lemaitrei*, *A. crosnieri* and *A. jenerri*, all Kilburn, 1977). However *Ancilla hesperancilla matthewsi* Burch and Birch, 1967 (according to Kilburn, 1981:450 figure 239) has also the same kind of rachidian teeth. The full significance is unknown.

Type Material (Table 1): Holotype: MACN 6519, P. H. Bruno Videla and A. Pozzi coll., May 1946, dead shell. Paratypes: two shells, MACN 23459, 34°40' S–55°15' W, 100 m depth, 15 Sep. 1935; one shell, MACN 9361–57, Mar del Plata, Mar. 1915; two shells + one live-collected specimen, MACN 15356–2, 34°40' S–53°59'30" W, 29.3 m depth, Mar. 1925; one shell, MACN 5557–16, ARA (research vessel) PATRIA, Station 50, off Mar del Plata; one shell, MACN 10707, Mar del Plata; one shell, MLP 1451, Miramar, Buenos Aires; one shell, MNHN 9111, Cabo Polonio, Departamento Rocha, Uruguay, fishing boat, 3 Nov. 1955.

Type Locality: Golfo San Matías, Río Negro Province, Argentina (~41° S).

Other Material Examined: One shell, MACN 10295, Mar del Plata, Buenos Aires; one live-collected specimen, MLP unnumbered, Mar del Plata (Figures 7–8) (this is probably the same specimen mentioned and dissected by Fernández, 1965; she did not, however, report the collection number and, as far as information on the label goes, the material has no special nomenclatural standing); four live-collected specimens, Tarasconi collection, southern coast of São Paulo State, Brazil, 20–40 m depth, December 1996; five live-collected specimens, Tarasconi collection, off Laguna, Santa Catarina State, Brazil, 60–80 m depth, Apr. 2000; three live-collected specimens, MZSP 32553 off Angra dos Reis, Rio de Janeiro State, Brazil Mar. 1969.

Distribution: From Espírito Santo, Brazil (Rios,

1994 (~20° S) to Golfo San Matías, Argentina (~41° S) (Scarabino, 1977). The depth range appears to increase from the north, where it is a shallow water species, to the south, where it lives in depths to 80 m.

Etymology: Named after my friend and serious collector José Carlos Tarasconi from Porto Alegre, Brazil.

Comments on Literature Records: Strebel (1905) 33°05'–51°10' W (south of Rio Grande do Sul State, Brazil), 80 m depth, station 4 of the Swedish Südpolar Expedition, as *Ancilla dimidiata*; Scarabino (1977) cited this species (also as *Ancilla dimidiata*) from off Bahía San Antonio, Golfo San Matías (~41° S) in sandy bottoms. Dall's material from the Albatross expedition originally identified as *Ancillaria tankervillei* (*A. tankervillei* of Dall) and later identified by M. A. Klappenbach as *Ancilla dimidiata* (A. Kabat pers. comm.); USNM 96125, Station USFC 2762, 111.6 m depth, 20°05' S, 41°34' W (30 Dec. 1887); USNM 96619, Station USFC 2764, 21.0 m depth, Samborombón Bay, 36°42' S, 56°23' W (12 Jan. 1888) both stations published in Dall (1890); and USNM 224495 and 656371 are from station USFC 2766, 19.2 m depth, Samborombón Bay, 36°47' S, 56°23' W (12 Jan. 1888) (Kabat, pers. comm.).

DISCUSSION

Amalda josecarlosi new species was confused with *A. dimidiata* and *A. tankervillei* by various authors (Dall, 1890; Strebel, 1905; Fernández, 1965; Castellanos, 1970; Scarabino, 1977; among others). Kilburn (1977) provided a short diagnosis of the genus *Amalda* that was adopted herein; however, the definition of a new character was necessary in order to clarify the shell morphology of the new species as well as the type. Subgeneric assignment was avoided because as Kilburn remarked subgenera "are in urgent need of revision".

Amalda tankervillei (Figures 15–17) from Venezuela, mentioned by Dall (1890) from off Río de la Plata and erroneously identified by Fernández (1965), is a species large for the genus, which reaches more than 75 mm, with an almost smooth columella pillar and a thin fringe between the posterior groove and the ancillid groove, defined here as the last whorl middle band. Coloration is also very different: distinct shades of pale orange for *A. tankervillei* and whitish for the new species. Dall (1890), Fernández (1965), and Marcus and Marcus (1965), among other authors, used an emended version of the spelling of this species: *A. tankervillei*. However, according to the Articles 32.3 and 32.5 of the International Code of Zoological Nomenclature (International Commission on Zoological Nomenclature, 1999) the original incorrect latinization is not considered an error and therefore does not warrant emendation.

Two syntypes of *A. dimidiata* housed at the BMNH apparently have never been illustrated after the original description. Unfortunately, soft parts were not preserved. They are similar to the new species here described, but it has a thinner profile, the columella pillar

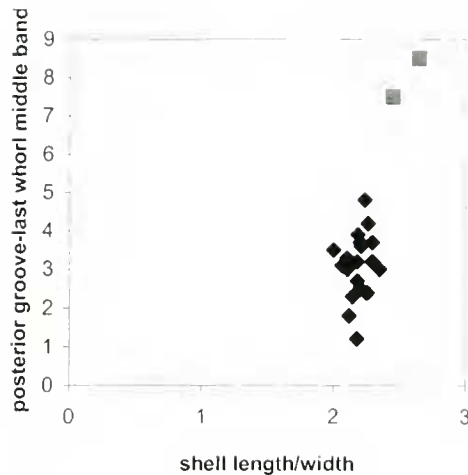


Figure 26. Scatter diagram showing the relation between length of the field between the apical line and ancillid band vs. shell length/width of *Amalda jossecarlosi* new species (◆) and syntypes of *Ancilla dimidiata* (■). N = 20.

is straighter and with less conspicuous plaits, and the anterior fasciolar groove is deeper. The posterior groove in both syntypes of *A. dimidiata* always reaches the labrum above its middle point. On the other hand, in all the specimens studied (more than 20 at different ontogenetic stages and from different localities), the apical line of the new species always reaches the labrum anterior to its middle point, particularly in adult specimens. The scatter diagram (Figure 26) showing a plot of the length of the last whorl middle band at the edge of the labrum (the band between the posterior groove and ancillid groove) vs. the shell length/width clearly shows the difference between the two syntypes of *A. dimidiata* and several specimens of *A. jossecarlosi* new species. As far as I know, the geographical distribution of *A. dimidiata* does not include waters off Argentina. Due to the large and poorly explored Brazilian shelf, its presence or absence off this country could not be verified. Kilburn (pers. comm.) considered the Red Sea as an erroneous locality. The real range of *A. dimidiata* remains uncertain.

Voskuil (1991) redescribed and illustrated the recent species of the genus *Eburna* Lamarek, 1801, including two species from the southern Caribbean, *E. glabrata* (L., 1758) (type species of *Eburna*) and *E. balteata* (Swainson, 1825) and one from off northern Brazil, *E. lievardii* (Bernardi, 1859). In addition, Kilburn discussed the diagnostic characters of the genus *Amalda*. He pointed out the definition of *Amalda* of some recent authors better fits some species of *Baryspira* than *A. tankervillei*, type species of *Amalda*. According to Voskuil (1991) the diagnosis of *Amalda* followed by Chavan (1965) and Kilburn (1977) was based on species of *Baryspira* rather than on *A. tankervillei*. Voskuil finally concluded that *Amalda* should be considered as a subgenus of *Eburna*. I agree that the *Amalda* species described by Kilburn and Bouchet (1988) and Kilburn (1993) present several

distinct characters that are somewhat far removed from those in *A. tankervillei*. Perhaps future research will show that *Amalda* deserves further taxonomic division.

The morphology of the umbilicus of the species included in *Eburna* are in fact a conclusive character that should warrant full generic status. However, *Amalda* (type species *Amalda tankervillei*) should also be considered as a full-fledged genus with two species in the southwestern Atlantic.

According to the literature, most of the species of Ancillariinae occur outside the New World. South Africa, the Arabian Peninsula, New Caledonia, and Indonesia appear to be the regions with the largest number of species. *Amalda jossecarlosi* new species is the only species of the subfamily living in Argentina. In addition, despite the good development of Tertiary deposits in Patagonia, there is no record of fossil representatives of this genus. Therefore, *Amalda jossecarlosi* new species, the southernmost living species of the subfamily, is probably derived from the Caribbean stock in which area the type species of the genus presently occur.

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